# WPA配置概述

### 目錄

<u>簡介</u> <u>必要條件</u> <u>需求</u> <u>採用元件</u> <u>背景理論</u> <u>慣例</u> <u>設定</u> <u>網路EAP或使用EAP的開放式身份驗證</u> <u>GUI配置</u> <u>驗證</u> <u>疑難排解</u>程式 <u>指令疑難排解</u> 相關資訊

## <u>簡介</u>

本文檔提供了Wi-Fi保護訪問(WPA)配置示例,WPA是Wi-Fi聯盟成員使用的臨時安全標準。

### <u>必要條件</u>

<u>需求</u>

嘗試此組態之前,請確保符合以下要求:

- 全面瞭解無線網路和無線安全問題
- 可擴展身份驗證協定(EAP)安全方法知識

#### 採用元件

本文中的資訊係根據以下軟體和硬體版本:

- Cisco IOS®軟體型存取點(AP)
- Cisco IOS軟體版本12.2(15)JA或更新版本注意:最好使用最新的Cisco IOS軟體版本,即使 Cisco IOS軟體版本12.2(11)JA及更高版本支援WPA。若要取得最新的Cisco IOS軟體版本,請 參閱<u>下載</u>(僅限<u>註冊</u>客戶)。
- •相容WPA的網路介面卡(NIC)及其WPA相容客戶端軟體

本文中的資訊是根據特定實驗室環境內的裝置所建立。文中使用到的所有裝置皆從已清除(預設))的組態來啟動。如果您的網路正在作用,請確保您已瞭解任何指令可能造成的影響。

#### <u>背景理論</u>

無線網路(例如WEP)的安全功能較弱。Wi-Fi聯盟(或WECA)行業團隊為無線網路設計了一個 下一代臨時安全標準。該標準提供在IEEE組織批准802.11i標準之前針對弱點的防禦。

此新方案基於當前EAP/802.1x身份驗證和動態金鑰管理,並新增了更強大的密碼加密。客戶端裝置 和身份驗證伺服器建立EAP/802.1x關聯後,AP和相容WPA的客戶端裝置之間會協商WPA金鑰管理 。

思科AP產品還提供混合配置,其中基於WEP的傳統EAP客戶端(具有傳統或無金鑰管理)與 WPA客戶端協同工作。此配置稱為遷移模式。遷移模式允許分階段遷移到WPA。本文檔不涉及遷移 模式。本文檔提供了純WPA安全網路的大綱。

除了企業或企業級別的安全問題外,WPA還提供預共用金鑰版本(WPA-PSK),用於小型辦公室、家 庭辦公室(SOHO)或家庭無線網路。Cisco Aironet客戶端實用程式(ACU)不支援WPA-PSK。 Microsoft Windows中的無線零配置實用程式支援大多數無線卡的WPA-PSK,這些實用程式也是如 此:

- Meetinghouse Communications的AEGIS客戶端註:請參閱<u>Meetinghouse AEGIS產品系列的</u> EOS和EOL公告。
- Funk Software的Odyssey客戶端注意:請參閱Juniper Networks客戶支援中心。
- 某些製造商的原始裝置製造商(OEM)客戶端實用程式

在以下情況下,可以配置WPA-PSK:

- 在加密管理器頁籤上,將加密模式定義為密碼臨時金鑰完整性協定(TKIP)。
- 您可以在GUI的Service Set Identifier(SSID)Manager頁籤上定義身份驗證型別、使用經過身份 驗證的金鑰管理和預共用金鑰。
- 伺服器管理器頁籤上不需要配置。

若要透過指令行介面(CLI)啟用WPA-PSK,請輸入以下命令。從組態模式開始:

AP(config)#interface dot11Radio 0
AP(config-if)#encryption mode ciphers tkip
AP(config-if)#ssid ssid\_name
AP(config-if-ssid)#authentication open
AP(config-if-ssid)#authentication key-management wpa
AP(config-if-ssid)#wpa-psk ascii pre-shared\_key

**注意:**本節僅提供與WPA-PSK相關的配置。本節中的配置只是向您介紹如何啟用WPA-PSK,而不 是本文檔的重點。本文說明如何配置WPA。

#### <u>慣例</u>

<mark>請參閱<u>思科技術提示慣例以瞭解更多</u>有關文件慣例的資訊。</mark>

### <u>設定</u>

WPA基於當前的EAP/802.1x方法。本文檔假定在新增配置以使用WPA之前,您有一個輕量 EAP(LEAP)、EAP或受保護的EAP(PEAP)配置。

本節提供用於設定本檔案中所述功能的資訊。

註:使用Command Lookup Tool(僅供已註冊客戶使用)可獲取本節中使用的命令的詳細資訊。

#### 網路EAP或使用EAP的開放式身份驗證

在任何基於EAP/802.1x的身份驗證方法中,您可能會問Network-EAP和Open authentication with EAP之間有何區別。這些專案引用管理和關聯資料包報頭中的Authentication Algorithm欄位中的值 。大多數無線客戶端製造商將此欄位設定為值0(開放式身份驗證),然後表示希望在關聯過程後期 進行EAP身份驗證。Cisco設定值的方式與使用Network EAP標誌開始關聯時不同。

使用此清單指示您的網路是否有以下客戶端的身份驗證方法:

- Cisco clients 使用Network-EAP。
- 第三方客戶端(包括符合Cisco Compatible Extensions [CCX]標準的產品) 使用Open authentication with EAP。
- •思科和第三方客戶端的組合 同時選擇Network-EAP和Open authentication with EAP。

#### <u>CLI組態</u>

本檔案會使用以下設定:

- •存在並正常工作的LEAP配置
- 適用於Cisco IOS軟體型AP的Cisco IOS軟體版本12.2(15)JA

AP				
ap1# <b>show running-config</b>				
Building configuration				
aaa new-model				
!				
aaa group server radius rad_eap				
server 192.168.2.100 auth-port 1645 acct-port 1646				
•				
·				
aaa authentication login eap_methods group rad_eap				
bridge irb				
interface Dot11Radio0				
no ip address				
no ip route-cache				
- !				
encryption mode ciphers tkip				
! This defines the cipher method that WPA uses. The				
TKIP ! method is the most secure, with use of the Wi-				
Fi-defined version of TKIP. ! ssid WPAlabap1200				

```
authentication open eap eap_methods
!--- This defines the method for the underlying EAP when
third-party clients !--- are in use.
                                        authentication
network-eap eap_methods
!--- This defines the method for the underlying EAP when
Cisco clients are in use.
                            authentication key-
management wpa
!--- This engages WPA key management. ! speed basic-1.0
basic-2.0 basic-5.5 basic-11.0 rts threshold 2312
channel 2437 station-role root bridge-group 1 bridge-
group 1 subscriber-loop-control bridge-group 1 block-
unknown-source no bridge-group 1 source-learning no
bridge-group 1 unicast-flooding bridge-group 1 spanning-
disabled . . . interface FastEthernet0 no ip address no
ip route-cache duplex auto speed auto bridge-group 1 no
bridge-group 1 source-learning bridge-group 1 spanning-
disabled ! interface BVI1 ip address 192.168.2.108
255.255.255.0 !--- This is the address of this unit. no
ip route-cache ! ip default-gateway 192.168.2.1 ip http
server ip http help-path
http://www.cisco.com/warp/public/779/smbiz/prodconfig/he
lp/eag/ivory/1100 ip radius source-interface BVI1 snmp-
server community cable RO snmp-server enable traps tty
radius-server host 192.168.2.100 auth-port 1645 acct-
port 1646 key shared_secret !--- This defines where the
RADIUS server is and the key between the AP and server.
radius-server retransmit 3 radius-server attribute 32
include-in-access-req format %h radius-server
authorization permit missing Service-Type radius-server
vsa send accounting bridge 1 route ip ! ! line con 0
line vty 5 15 ! end ! end
```

#### <u>GUI配置</u>

完成以下步驟,以便為WPA配置AP:

1. 完成以下步驟以設定加密管理器:為TKIP啟用密碼。清除加密金鑰1中的值。將Encryption Key 2設定為Transmit Key。按一下「**Apply-Radio#**」。

FACEO-692.118       RACIO1-802.11A         TUP       Kostname labagi 1200p162       16:10:56 Tee April         Scanthy: Encryption Manager - Radio 922.110       Encryption Manager - Radio 922.110         Encryption Monadury:       Cisco Compliant TKP Pestures:       Encryption Per Packet Keying         VMEP Encryption       Monadury:       Cisco Compliant TKP Pestures:       Encryption Key Stee         Encryption Keys       Encryption Key 1:       Encryption Key 1:       Encryption Key 3:         Encryption Key 1:       Encryption Key 2:       Encryption Key 3:       Encryption Key 3:         Encryption Key 2:       Encryption Key 3:       Encryption Key 3:       Encryption Key 3:         Encryption Key 4:       Disable Retation       Encryption (D-10000000 sec)         WPA Group Key Update:       Ensible Group Key Update On Mentership Termination       Ensible Group Key Update On Mentership Capability Change	FILE       FACKD0-892.118       RACIOL-02.11A         FET UP       Restiname Ideop1200p192       16:10:50 Tee Apr 4         FET UP       Security: Encryption Manager - Radio 022.110         Encryption Medes       Cisco Compliant TKP Features: Enable MIC         Encryption Keys       Encryption Key It         Cipher       Transmit Key         Encryption Key 1:       Security: Encryption Key 1:         Encryption Key 2:       Security: Encryption Key 3:         Encryption Key 2:       Security: Encryption Key 4:         Encryption Key 2:       Security: Encryption Key 4:         Encryption Key 4:       Security: Security: Encryption Key 4:         Encryption Key 2:       Security: Se		Cisco 1200	Access Point			
TUP CLARTY       Instrume Labup 1280p182       Instrume Labup 1280p182       Instrume Labup 1280p182         Scaling: Encryption Manager - Radio 0.002.118       Incryption Medes       Incryption Medes         Instrume Labup 1280p182       None       Incryption Medes       Incryption Medes         Instrume Labup 1280p182       Incryption Medes       Instruments       Instruments         Instrume Labup 1280p182       Instruments       Instruments       Instruments         Instrume Labup 1280p182       Instruments       Instruments       Instruments         Instrume Labup 1280p182       Instruments       Instruments       Instruments         Instruments       Instruments       Instruments       Instruments       Instruments         Instruments       Instruments       Instruments       Instruments       Instruments <tr< th=""><th>Et UP       testsmer takup 1200p102       16:10:50 Tea.Au         Standard Standa</th><th>ر</th><th>RADIO0-802.118</th><th>RADI01-802.11A</th><th></th><th></th></tr<>	Et UP       testsmer takup 1200p102       16:10:50 Tea.Au         Standard Standa	ر	RADIO0-802.118	RADI01-802.11A			
CLARTY + + + + + + + + + + + + + + + + + + +	CL GRTV         N         N         Security: Encryption Maxaager - Radio0 832.110         Encryption Medee         Sas         Manager ger syste         UB Bener         Security:         IC Comption         Manager         ger         VEP Encryption         Manager         ger         VB Bener         Cisco Compliant TX/P Features:         Encryption Key         Cipher         TORRE +         Imager	BET-UP	Hostname Labap 1200(p102			16:19:50 Tue Apr 6	
V       *         *	Stanthy: Encryption Manager - Radied 802.110         Encryption Medes         S3         Manager ger system Medes         S30         WEP Encryption Mendatory ©         Cisco Compliant TKP Features:         Encryption Keys         Cisco Compliant TKP Features:         Encryption Keys         Encryption Keys         Encryption Keys         Encryption Keys         Encryption Keys         Encryption Key 1:         Cisco Compliant TKP Features:         Encryption Keys         Encryption Keys         Encryption Keys         Encryption Key 1:         Cisco Compliant Key         Encryption Keys         Encryption Key 2:         Encryption Key 3:         Encryption Key 4:         Cisco Compliant Key         Encryption Key 4:         Cisco Compliant Key         Encryption Key 3:         Encryption Key 4:         Cisco Encryption Key 4:         Cisco Encryption Key 4:         Encryption Key 8:         Encryption Key 8:         Encryption Key 4:         Cisco Compliant Key 1:         Encryption Key 1:         Encryption Key 2: <t< td=""><td>BECLIRITY</td><td></td><td></td><td></td><td></td></t<>	BECLIRITY					
Image: Standard S	Encryption Modes Encryption Mondatory Circo Compliant TrCP Features: Enable MIC Enable Per Packet. Keying Circo Compliant TrCP Features: Enable MIC Enable Per Packet. Keying Encryption Keys Encryption Keys Encryption Key 1: Circo Compliant TrCP Features: Enable MIC Encryption Key (flexadecined) Key Size Encryption Key 1: Circo Compliant TrCP Features: Enable MIC Encryption Key (flexadecined) Key Size Encryption Key 1: Circo Compliant TrCP Features: Enable MIC Encryption Key (flexadecined) Key Size Encryption Key 1: Circo Compliant TrCP Features: Enable MIC Encryption Key (flexadecined) Key Size Encryption Key 1: Circo Compliant TrCP Features: Circo Compliant Circo Compliant TrCP Features: Circo Compliant Circo Compliant Circo Com	NN +	Security: Encryption Manager - Ra	sdic0-832.11B			
ss       Amager         re'       get         VWEP Encryption       Mendatury         Cisco Compliant TKP Features:       Enable MtC         is compliant TKP Features:       Enable MtC         is compliant TKP Features:       Enable Per Packet Keying         is compliant Key       is compliant TKP Features:         is compliant Key       is compliant Key         is compliant Key       is compliant         is com	SS       Monager         ger       WEP Encryption Mendatory Clasco Compliant TKP Features: Enable MIC Enable Per Packet Keying         Clasco Compliant TKP Features: Enable MIC Enable Per Packet Keying         Clasco Compliant TKP Features: Enable MIC Enable Per Packet Keying         Clasco Compliant TKP Features: Enable MIC Enable Per Packet Keying         Clasco Compliant TKP Features: Enable MIC Enable Per Packet Keying         Clasco Compliant TKP Features: Enable MIC Enable Per Packet Keying         Clasco Compliant TKP Features: Enable MIC Enable Per Packet Keying         Clasco Compliant TKP Features: Enable MIC Enable Per Packet Keying         Clasco Compliant TKP Features: Enable MIC Enable Per Packet Keying         Clasco Compliant TKP Features: Enable MIC Enable Per Packet Keying         Class Compliant TKP Features: Encryption Key flexadecimal         Fercryption Keys         Encryption Keys         Encryption Key 1:         Class Key Retation Interval: Encryption Key 3:         Encryption Key 4:         Class Properties         Breadcast Key Retation Interval: Obable Retation         Ensible Floation with Interva: DISABLEC (10-10000000 sec)         WPA Group Key Update:       Ensible Group Key Update On Membersho Capability Change	+	Encryption Modes				
Image:       Image:         Image:       WEP Encryption       Mendatory         IS Gene:       Cisco Compliant TKP Features:       Enable MtC       Enable Per Packet Keying         Image:       Cipher       TKP       Image:       Encryption Key Size         Image:       Image:       Image:       Image:       Image:       Image:         Image:       Imag	is       Image         Remayer       WEP Encryption         is Gener       Cisco Compliant TKP Festures:         is Gener       Cisco Compliant TKP Festures:         is Gener       Cisco Compliant TKP Festures:         is Gener       Encryption Keys         is Gener       Transmit Key         is Gener       Encryption Keys         is Gener       Is conception Key (Hexadecinal)         is conception Key 1:       Is conception Key (Hexadecinal)         is conception Key 2:       is conception Key 1:         is conception Key 3:       Is conception Key 3:         is conception Key 4:       Is conception Key 1:         is conception Key 3:       Is conception Key 3:         is conception Key 4:       Is conception Key 3:         is conception Key 4:       Is conception         is conception Key 4:       Is conception         is conception Key 4:       Is conception         is conception Key Update:       Is conception with Intervat:         Is conception Key Update:       Is conception Key Update On Membership Termination         is conception Key Update:       Is conception Key Update On Membership Conspating Change		0.0				
weigen einen untigen im genetie untigen einen ein ei	Image   Image </td <td></td> <td>None</td> <td></td> <td></td> <td></td>		None				
er       O WEP Encryption       Mendatory *         B Bener unity       Cisco Compliant TKP Festures:       Enable MIC       Enable Per Packet. Keying         WIDES + NARE + *       Cipher       TKP       *         Encryption Keys       Encryption Key 1:       *       Encryption Key 3:       128 bit *         Encryption Key 3:       C       128 bit *       128 bit *         Encryption Key 4:       O Disable Retation       128 bit *       128 bit *         Global Properties       Scadcast Key Retation Interval:       O Disable Retation       Cincuption Contents         WFA Group Key Update:       Ensible Group Key Update On Membership Termination       Ensible Group Key Update On Membership Termination	er       0       WEFP Encryption Mendatory *         0 Gener:       Cisco Compliant TKP Features: Enable MIC Enable Per Packet Keying         Image: er       Transmit Key       Encryption Key flexadecimal)         Image: er       Transmit Key       Encryption Key flexadecimal)       Key Size         Image: er       Transmit Key       Encryption Key flexadecimal)       Key Size         Image: er       Encryption Key 1:       Image: er       Image: er         Image: er       Encryption Key 2:       Image: er       Image: er         Encryption Key 3:       Image: er       Image: er       Image: er         Encryption Key 3:       Image: er       Image: er       Image: er         Image: er       Image: er       Image:	mager r					
S Dener       Cisco Compliant TKP Festures:       Enable MIC       Enable Per Packet Keying         Image: Stream of the stream	S Server cuity R/RCES WARE TROPPIER	pér	O WEP Encryption Mendatory	*			
Statistics       Cipher       TK/P         Image: teached and t	Excuption       ************************************	US Server	Cisc	o Compliant TKP Feature	es: 🔲 Enable MIC 👘 Enable Per Pack	et Keying	
Image: the second se	Image: Comparison of the second s	Decurity					
Transmit Key       Encryption Key (flexadecimal)       Key Size         Encryption Key 1:       Image: Complete Key 1:       Image: Complete Key 1:         Encryption Key 2:       Image: Complete Key 3:       Image: Complete Key 3:         Encryption Key 4:       Image: Complete Key 4:       Image: Complete Key 4:         Global Properties       Image: Complete Key 4:       Image: Complete Key 4:         Global Properties       Image: Complete Key 4:       Image: Complete Key 4:         WPA Group Key Update:       Image: Comp Key Update Com Membership Termination         Image: Comp Key Update:       Image: Comp Key Update Com Membership Termination         Image: Comp Key Update:       Image: Comp Key Update Com Membership Termination         Image: Comp Key Update:       Image: Comp Key Update Com Membership Termination	Transmit Key       Encryption Key (flexadecimal)       Key Size         Encryption Key 1:       Image: Complete Key 1:       Imag	ERVICES +	Cipher TKP	~			
Encryption Keys       Transmit Key       Encryption Key (!lexadecimal)       Key Size         Encryption Key 1:       0       128 bit *         Encryption Key 2:       0       128 bit *         Encryption Key 3:       128 bit *         Encryption Key 4:       128 bit *         Global Properties       128 bit *         Breadcast Key Rotation Interval:       © Disable Retation         © Enable Rotation with Interval:       016 ADLEO (10-10000000 sec)         WPA Group Key Update:       Enable Group Key Update On Membership Termination         Enable Group Key Update On Membership Termination       Enable Group Key Update On Membership Termination	Image: Second	WARE +					
Encryption Keys       Transmit Key       Encryption Key (Hexadecimal)       Key Size         Encryption Key 1:       0       128 bit          Encryption Key 2:       0       128 bit          Encryption Key 3:       0       128 bit          Encryption Key 4:       128 bit          Global Properties       128 bit          Breadcast Key Retation Interval:       0 loable Retation         Encryption Key Update:       0 loable Retation         Encryption Key Update:       Encryption Key Update On Membership Termination	Encryption Keys       To ansmit Key       Encryption Key (lexadecime)       Key Size         Encryption Key 1:       0       128 bit *         Encryption Key 2:       0       120 bit *         Encryption Key 3:       128 bit *       128 bit *         Encryption Key 4:       128 bit *       128 bit *         Global Properties       128 bit *       128 bit *         Breadcast Key Retation Interval:       © Disable Retation       128 bit *         © Ensbie Rotation with Interval:       016 ABLED (10-10000000 sec)       *         WPA Group Key Update:       Ensbie Group Key Update On Membership Termination       Ensbie Group Key Update On Membership Termination	+	· · · · · ·				
Image: Construction of the station of the station of the station of the station with interval:       Disable Retation       Key Size         Image: Construction of the station of the station of the station of the station with interval:       Image: Construction of the station of th	Transmit Key       Encryption Key (Itexadecimal)       Key Size         Encryption Key 1:       Image: State		Encryption Keys				
Encryption Key 1:       128 bit          Encryption Key 2:       0         Encryption Key 3:       128 bit          Encryption Key 4:       128 bit          Global Properties       128 bit          Breadcast Key Rotation Interval:       Disable Retation         © Enable Rotation with Interval:       DISABLED (10-10000000 sec)         WPA Group Key Update:       Enable Group Key Update On Membership Termination         Enable Group Key Update On Membership Termination       Enable Group Key Update On Membership Termination	Encryption Key 1:       128 bit          Encryption Key 2:       0         Encryption Key 3:       128 bit          Encryption Key 4:       128 bit          Global Properties       128 bit          Breadcast Key Retation Interval:       O lisable Retation         © Enable Retation       Enable Coup Key Update On Membership Termination         © Enable Group Key Update On Membership Termination       Enable Group Key Update On Membership Termination			Transmit Key	Encryption Key (Hexadecimal)	Key Size	
Chocyption Key 2:       0       120 bit          Encryption Key 3:       128 bit          Encryption Key 4:       128 bit          Global Properties       128 bit          Breadcast Key Rotation Interval:       © Disable Retation         © Enable Rotation with Interval:       DISABLED (10-10000000 sec)         WFA Group Key Update:       Enable Group Key Update On Membership Termination         Enable Group Key Update On Membership Termination       Enable Group Key Update On Membership Termination	Encryption Key 2:       0       120 bit          Encryption Key 3:       120 bit          Encryption Key 4:       120 bit          Global Properties       128 bit          Breadcast Key Rotation Interval:       0 lisable Rotation         © Enable Rotation with Interval:       0 lisABLED (10-10000000 sec)         WPA Group Key Update:       Enable Group Key Update On Membership Termination         Enable Group Key Update On Membership Termination       Enable Group Key Update On Membership Termination		Encryption Key 1:	0		128 bit 🛁	
Encryption Key 3:  Encryption Key 3:  Encryption Key 4:  Encryption Ke	Encryption Key 3:  Encryption Key 3:  Encryption Key 4:  Encryption Ke	R	Encryption Key 2:	•		120 bit 💌	
Encryption Key 3:  Encryption Key 3:  Encryption Key 4:  Encryption Ke	Encryption Key 3:  Encryption Key 3:  Encryption Key 4:  Encryption Ke					100 011	
Encryption Key 4:       128 bit v         Global Properties       Global Properties         Breadcast Key Rotation Interval:       © Disable Retation         © Enable Rotation with Interval:       DISABLED (10-10000000 sec)         WPA Group Key Update:       © Enable Group Key Update On Membership Termination         © Enable Group Key Update On Membership Termination       © Enable Group Key Update On Membership Change	Encryption Key 4:       128 bit w         Global Properties       Global Properties         Breadcast Key Retation Interval:       © Disable Retation         © Enable Rotation with Interval:       DISABLED (10-10000000 sec)         WPA Group Key Update:       © Enable Group Key Update On Membership Termination         © Enable Group Key Update On Membership Termination		Encryption Key 3:	0		128 bit 👻	
Global Properties  Global Properties  Breadcast Key Retation Interval:  Disable Retation  Enable Rotation with Interval: DISABLED (10-10000000 sec)  WPA Group Key Update: Enable Group Key Update On Membership Termination Enable Group Key Update On Membership Termination Enable Group Key Update On Membership Change	Global Properties         Breadcast Key Retations Interval: <ul> <li>Disable Retation</li> <li>Enable Rotation with Interval:</li> <li>DISABLED (10-10000000 sec)</li> </ul> WPA Group Key Update:       Enable Group Key Update On Membership Termination         Enable Group Key Update On Membership Capability Change		Encryption Key 4:	0		128 bit 💌	
Global Properties	Global Properties         Breadcast Key Retation Interval: <ul> <li>Disable Retation</li> <li>Enable Retation with Interval:</li> <li>DISABLED (10-1000000 sec)</li> </ul> WPA Group Key Update: <ul> <li>Enable Group Key Update On Membership Termination</li> <li>Enable Group Key Update On Membership Change</li> </ul>						
Global Properties Breadcast Key Retation Interval:  Disable Retation  Enable Retation with Interval: DISABLED (10-10000000 sec)  WPA Group Key Update: Enable Group Key Update On Membership Termination Enable Group Key Update On Membership Termination	Global Properties         Breadcast Key Retation Interval:         © Disable Retation         © Enable Retation with Interval:         DISABLED (10-10000000 sec)         WPA Group Key Update:         © Enable Group Key Update On Membership Termination         © Enable Group Key Update On Membership Termination						
Breadcast Key Rotation Interval:  Disable Rotation Enable Rotation with Interval: DISABLED (10-10000000 sec) WFA Group Key Update: Enable Group Key Update On Membership Termination Enable Group Key Update On Membership Termination	Breadcast Key Retation Interval: <ul> <li>Disable Retation</li> <li>Enable Retation with Interval:</li> <li>DISABLED (10-10000000 sec)</li> </ul> WPA Group Key Update: <ul> <li>Enable Group Key Update On Membership Termination</li> <li>Enable Group Key Update On Membership Capability Change</li> </ul>		Global Properties				
Enable Fotation with Interval: DISABLED (10-10000000 sec)      WIPA Group Key Update:     Enable Group Key Update On Membership Termination     Enable Group Key Update On Membership Change	Enable Rotation with Interval: DISABLED (10-10000000 sec)      WIPA Group Key Update:     Enable Group Key Update On Membership Termination     Enable Group Key Update On Member's Capability Change		Breadcast Key Rotation Interval:	Disable Ref	tation		
WPA Group Key Update: <ul> <li>Enable Group Key Update On Membership Termination             <li>Enable Group Key Update On Membership Termination</li> </li></ul>	WPA Group Key Update: <ul> <li>Enable Group Key Update On Membership Termination</li> <li>Enable Group Key Update On Membership Capability Change</li> </ul>			C Eachia Cat	ative with Internet: DISABLED, (10.10000000	eac)	
WPA Group Key Update: Enable Group Key Update On Membership Termination Enable Group Key Update On Membersh Capability Change	WPA Group Key Update: <ul></ul>			Chable Hotable Will interfal (In Goodoo set)			
WPA Group Key Update: Enable Group Key Update On Membership Termination Enable Group Key Update On Member's Capability Change	WPA Group Key Update: Enable Group Key Update On Membership Termination Enable Group Key Update On Member's Capability Change						
Enable Group Key Update On Member's Capability Change	Enable Group Key Update On Member's Capability Change		WPA Group Key Update:	<ul> <li>Enable Group Key Update On Membership Termination</li> <li>Enable Group Key Update On Member's Capability Change</li> </ul>			
Apply-Redio0 App	Apply-Headou App				Ар	ply-Radio) App	

2. 完成以下步驟以設定SSID管理器:從當前SSID清單中選擇所需的SSID。選擇適當的身份驗證 方法。根據您使用的客戶端卡型別作出此決定。有關詳細資訊,請參閱本文檔的<u>網路EAP或使</u> <u>用EAP的開放式身份驗證</u>部分。如果EAP在新增WPA之前有效,則可能不需要更改。完成以 下步驟以啟用金鑰管理:從Key Management下拉選單中選擇Mandatory。選中WPA覈取方塊 。按一下「Apply-Radio#」。

CISCO STATEMS		la s
Laffilite of lite-b	Cisco 1200 Access Point	
HOME EXPRESS SET.UP EXPRESS SECLINITY	II RADIO1-802.118	07:54:41 Wed Apr 7 2004
NETWORK MAP + ASSOCIATION + NETWORK + NTERFACES +	Security: SSID Manager - Radio0.802.118 SSID Properties	
SECURITY AdminAccess Encryption Manager SSID Manager Derver Manager Local RADIUS Server Acknowl Dervet	Current SSID List         SSID:         WPAlabap1200           V/PAlabap1200         VLAN:         CNONE >          Optime VLA           Network ID:         (0.4006)         0.4006)         0.4006)	Na
SERVICED + WIRELESS SERVICES + SYSTEM SOFTWARE + EVENT LOO +	Delete-Riadio0 Delete-All	
	Authentication Settings	
	Methods Accepted:	
	- Cpan Authentication: with EAP	
	Shared Authentication: < NO ADDITION>	
	Network EAP:      NO ADDITION >	
	Server Priorities:	
	EAP Authentication Servers MAC Authentication Servers	
	Use Defaults Define Defaults     Ore Defaults     Ore Defaults	
	O Customize	
	Priority 1: (NONE) Priority 1: (NONE)	
	Priority 2: <none> Y Priority 2: <none> Y</none></none>	
	Phonty 3: Churke 3 V	
	Authenticated Key Management	
	Key Management: Mendatory V CCKM	E WPA
	WPA Pre-shared Key:   ASCE O Ho	radecimal
	aal 0. ul	

### <u>驗證</u>

使用本節內容,確認您的組態是否正常運作。

<u>輸出直譯器工具</u>(僅供<u>已註冊</u>客戶使用)(OIT)支援某些**show**命令。使用OIT檢視**show**命令輸出的分析 。

• show dot11 association *mac\_address* — 此命令顯示有關特定標識的關聯客戶端的資訊。驗證 客戶端是否將金鑰管理作為WPA協商,將加密作為TKIP。

Cisco - HyperTerminal						
File Edit View Call Transfer Help						
D 🚁 🐲 🏂 = D 🤮 😭						
labap1200ip102# <mark>sho_dot_ass_0030.6527.f74a</mark> Address : 0030.6527.f74a Name :	^					
IP Address : 10.0.0.25 Interface : Dot11Radio 0 Device : - Software Version :						
State: EAP-AssocParent: selfSSID: WPAlabap1200VLAN: 0Hops to Infra: 1Association Id: 4Clients Associated:0Repeaters associated: 0Junnel Address:0.00						
Key Mgmt type <th:>WPAEncryption: TKIPCurrent Rate:11.0Capability:Supported Rates: 1.0 2.0 5.5 11.0Connected for: 797 secondsSignal Quality: 88 %Connected for: 20 secondsPower-save: OffLast Activity: 40 seconds ago</th:>						
Packets Input: 57Packets Output: 42Bytes Input: 10976Bytes Output: 6767Duplicates Roud: 0Data Retries: 10Decrypt Failed: 0RTS Retries: 0MIC Failed: 0RTS Retries: 0						
Tabap12001p102#						
Connected 0:00:55 Auto detect TCP/IP . SCROLL CAPS NUM Capture Prink edua						

 特定客戶端的關聯表條目還必須將「金鑰管理」指示WPA,將「加密」指示TKIP。在 Association表中,按一下某個客戶端的特定MAC地址,以檢視該客戶端關聯的詳細資訊。

Cisco Svarena addus addus a	Cisco 12	េខ៤		
	STATISTICS	PINGLINK TEST		
HOME EXPRESS SET-UP EXPRESS SECURITY	Hostmanne Tablap 1204lp 102			11:51:37 Wed Apr 7 2004
ASSOCIATION	Association: Station View- Client			
NETWORK +	Station Information and Status			
SECURITY +	MAC Address	0030.6527./74a	Namo	
WRELESS SERVICES +	IP Address	0.0.0.0	Class	
SYSTEM BOFTMARE + EVENTLOG +	Device		Software Version	
	CCX Version			
1	State	EAP-Associated	Parent	self
1	SSID	WPAlabap1200	VLAN	rone
1	Hops To Infrastructure	1	Communication Over Interface	Radio0-802.11B
	Clients Associated	0	Repeaters Associated	0
1	Key Mgmt type	WPA	Encryption	THEP
1	Current Rate (Mb/sec)	11.0	Cepability	
	Supported Rates(Mb/cec)	1.0, 2.0, 5.5, 11.0	Association Id	4
	Signal Strangth (dBm)	-64	Connected For (sec)	3
	Signal Quality (%)	75	Activity TimeOut (sec)	59
	Fower-save	Of	Last Activity (sec)	1



本節提供的資訊可用於對組態進行疑難排解。

#### <u>疑難排解程式</u>

此資訊與此組態相關。完成以下步驟,對組態進行疑難排解:

- 1. 如果此LEAP、EAP或PEAP配置在WPA實施之前尚未經過徹底測試,則必須完成以下步驟 :暫時禁用WPA加密模式。重新啟用適當的EAP。確認身份驗證有效。
- 2. 驗證客戶端的配置與AP的配置是否匹配。例如,當AP配置為WPA和TKIP時,確認設定與客戶 端中配置的設定匹配。

#### 指令疑難排解

附註:使用 debug 指令之前,請先參閱<u>有關 Debug 指令的重要資訊</u>。

WPA金鑰管理涉及在EAP身份驗證成功完成後的四次握手。您可以在調試中看到這四條消息。如果 EAP未成功驗證客戶端,或者您看不到消息,請完成以下步驟:

- 1. 暫時禁用WPA。
- 2. 重新啟用適當的EAP。
- 3. 確認身份驗證有效。

此清單說明偵錯專案:

- debug dot11 aaa manager keys 此調試顯示AP和WPA客戶端之間發生的握手,作為成對臨時金鑰(PTK)和組臨時金鑰(GTK)協商。此偵錯是在Cisco IOS軟體版本12.2(15)JA中匯入。如果未顯示調試輸出,請驗證以下各項:終端監控術語mon已啟用(如果使用Telnet會話)。調試已啟用。客戶端已正確配置為WPA。如果調試顯示PTK和/或GTK握手已建立但未驗證,請檢查WPA請求方軟體是否正確配置和最新版本。
- debug dot11 aaa authenticator state-machine 此調試顯示客戶端在關聯和身份驗證時經歷的 各種協商狀態。狀態名稱表示這些狀態。此值錯是在Cisco IOS軟體版本12.2(15)JA中匯入。 debug取代Cisco IOS軟體版本12.2(15)JA和更新版本中的debug dot11 aaa dot1x statemachine命令。
- debug dot11 aaa dot1x state-machine 此調試顯示客戶端在關聯和身份驗證時經歷的各種協商狀態。狀態名稱表示這些狀態。在低於Cisco IOS軟體版本12.2(15)JA的Cisco IOS軟體版本中,此值錯也會顯示WPA金鑰管理交涉。
- debug dot11 aaa authenticator process 此調試最有助於診斷協商通訊問題。詳細資訊顯示 協商中的每個參與者傳送的內容,並顯示另一個參與者的響應。您還可以將此調試與debug radius authentication命令結合使用。此偵錯是在Cisco IOS軟體版本12.2(15)JA中匯入。 debug取代Cisco IOS軟體版本12.2(15)JA和更新版本中的debug dot11 aaa dot1x process命令 。
- debug dot11 aaa dot1x process 此調試有助於診斷協商通訊的問題。詳細資訊顯示協商中的 每個參與者傳送的內容,並顯示另一個參與者的響應。您還可以將此調試與debug radius authentication命令結合使用。在低於Cisco IOS軟體版本12.2(15)JA的Cisco IOS軟體版本中 ,此值錯會顯示WPA金鑰管理交涉。

### <u>相關資訊</u>

• 配置密碼套件和WEP

- 配置身份驗證型別
- <u>WPA2 Wi-Fi保護訪問2</u>
- Wi-Fi保護訪問2(WPA 2)配置
  技術支援與文件 Cisco Systems